

REMARKS

Claims 1-22 are pending in the present application. As will be discussed below, Claim 1 has been amended. No new matter has been added. Accordingly, entry of the present Amendment is requested.

Claim 1 has been rejected under 35 U.S.C. § 112, second paragraph, as assertedly being indefinite.

Specifically, it is noted that the claim recites a polymer in which "the total of repeating units of formula (1) and (3) is 50 mole % or more [but] the nature of the remaining portion of said polymer is not elucidated." The Examiner further comments that the unspecified region of the polymer may be conjugated or non-conjugated, and this would have bearing on the spectral properties of the polymer.

Further, on page 3 of the Office Action, Claim 1 is additionally rejected under the second paragraph of Section 112, on the basis that the term "heterocyclic compound group" is indefinite. Specifically, it is asserted that "a compound cannot be a group" and it is assertedly not clear what is meant by that term. According to the Examiner, "since there are hundreds, if not thousands, of heterocyclic groups, without qualification, the claim remains vague and indefinite."

Applicants respectfully traverse these rejections for the following reasons.

It is well settled that a claim is not indefinite because it is broad. It is true, as the Examiner has recognized, that the present claimed invention is directed to a polymer in which the total of repeating units of formula (1) and (3) is 50 % or more, and the nature of the remaining portions of the polymer are not specified. However, this is because the remaining

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portion of the polymer may be any suitable material⁷ provided the polymer contains repeating units of formula (1) and (3) in the specified amount.

Additionally, any suitable heterocyclic group may be used in the invention as would be apparent to one skilled in the art. (Preferred heterocyclic groups are recited in the specification at page 21, lines 9-14.)

With respect to the term "heterocyclic compound group," this phrase has been amended to "heterocyclic compound."

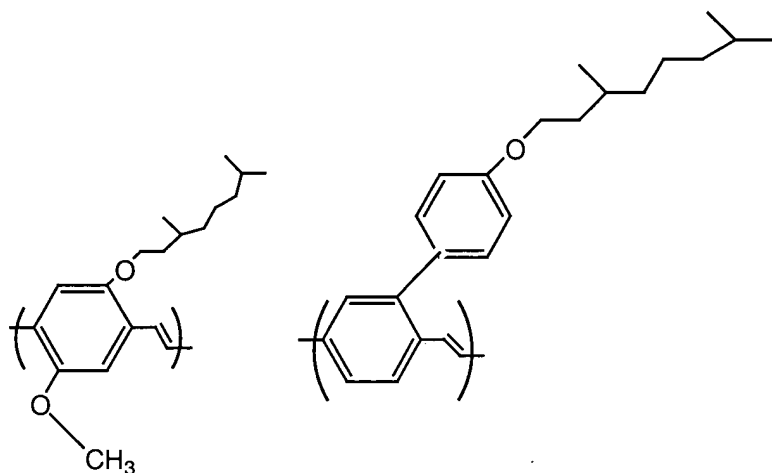
In view of the foregoing, withdrawal of the rejections is requested.

Referring to pages 3-5 of the Office Action, Claim 1 has been rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,458,909 to Spreitzer *et al.* Additionally, Claim 2 has been rejected under 35 U.S.C. § 103(a) as also being unpatentable over Spreitzer *et al.*

Applicants respectfully traverse this rejection for the following reasons.

As to the copolymer disclosed in Example A7 of Spreitzer, the Examiner states that the (2-(4'-(3,7-dimethyloctyloxy)phenyl)-p-phenylene vinylene) segment satisfies the structural requirements of formula (1).

The structure of the copolymer is shown below.



99 mol% : 1 mol%

poly(2-methoxy-5-(3,7-dimethyloctyloxy)-p-phenylene-vinylene)-co-(2-(4'-(3,7-dimethyloctyloxy)phenyl)-p-phenylene-vinylene)

The right structure corresponds to the (2-(4'-(3,7-dimethyloctyloxy)phenyl)-p-phenylene vinylene) segment, but contrary to the Examiner's understanding, the structure does not satisfy the structural requirements of formula (1) in Claim 1.


Accordingly, Applicants respectfully submit that Claims 1 and 2 of the present application are not anticipated or rendered *prima facie* obvious by Spreitzer. In view of the foregoing, withdrawal of this rejection is requested.

Reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,


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PATENT TRADEMARK OFFICE

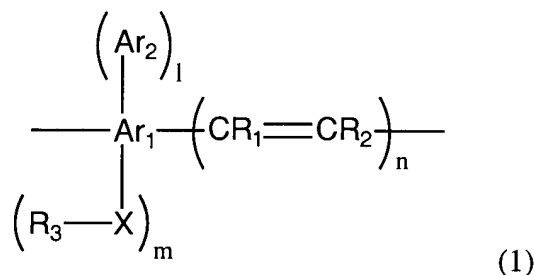
Date: July 15, 2003

APPENDIX
VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

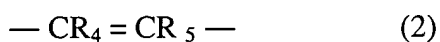
1. (Amended) A polymeric fluorescent substance exhibiting fluorescence in solid state, having a polystyrene reduced number-average molecular weight of 5×10^4 to 1×10^8 , and containing one or more repeating units of the following general formula (1) and one or more repeating units of formula (3), the total amount of the repeating units being 50 mol% or more based on the total amount of all repeating units, and the total amount of repeating units of formula (1) being from 0.1 mol% to 15 mol% based on the total amount of repeating units of formulae (1) and (3):



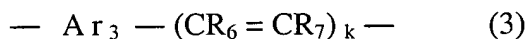
wherein, Ar_1 represents an arylene group having 6 to 60 carbon atoms contained in the main chain part or a divalent heterocyclic ~~compound~~ group having 4 or more and 60 or less carbon atoms contained in the main chain part thereof, Ar_2 represents an aryl group having 6 to 60 carbon atoms or a heterocyclic ~~compound~~ group having 4 to 60 carbon atoms, l represents an integer from 1 to 4, and m represents an integer from 1 to 4, provided $l+m$ does not exceed the maximum possible number of substituents on Ar_1 , X represents an oxygen atom, sulfur atom or a group of formula (2), R_3 is selected from the group consisting of an alkyl group having 1 to 20

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carbon atoms, an aryl groups having 6 to 60 carbon atoms, an arylalkyl group having 7 to 60 carbon atoms and a heterocyclic ~~compound~~ group having 4 to 60 carbon atoms, each of R₁ and R₂ independently is selected from the group consisting of a hydrogen atom, an alkyl group having 1 to 20 carbon atoms, an aryl group having 6 to 60 carbon atoms, a heterocyclic ~~compound~~ groups group having 4 to 60 carbon atoms and cyano group, and n is 0 or 1,



wherein, each of R₄ and R₅ independently is selected from the group consisting of a hydrogen atom, an alkyl group having 1 to 20 carbon atoms, an aryl group having 6 to 60 carbon atoms, a heterocyclic ~~compound~~ groups group having 4 to 60 carbon atoms and cyano group,



wherein, Ar₃ is an arylene group having 6 to 60 carbon atoms in the main chain part thereof or a heterocyclic ~~compound~~ group having 4 to 60 carbon atoms in the main chain part thereof, Ar₃ may have a substituent, however, does not simultaneously have substituents represented by -Ar₂ and -X-R₃ in the formula (1), each of R₆ and R₇ independently is selected from the group consisting of a hydrogen atom, an alkyl group having 1 to 20 carbon atoms, an aryl group having 6 to 60 carbon atoms, a heterocyclic ~~compound~~ group having 4 to 60 carbon atoms and cyano group, k is 0 or 1.